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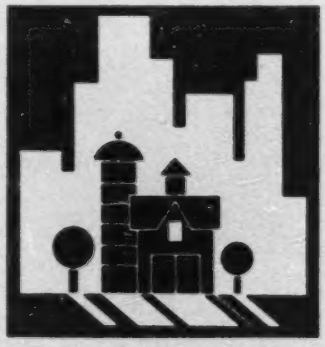
John M. Connor — **The Implications of Value Added for Indiana's Food Manufacturing Industries**

John M. Huie — **Taxes in Indiana: Recent Changes and Anticipated Issues**



In this issue . . .

Some Hoosiers have the misguided notion that there is enmity between Indiana and Purdue Universities. Perhaps this issue, composed entirely of articles by Purdue faculty members, can partially dispel that belief.

Whenever the subject of agriculture arises, there is confusion and concern about the full dimensions of that important activity. John M. Connor offers a useful estimate of one part of the food chain in this state. His work should help answer some of the question, "How important is food manufacturing in Indiana?"

Few academic economists enjoy (or suffer) the opportunities for service to their states that John M. Huie has had in Indiana. In these pages the former State Budget Director and Chairman of the State Board of Tax Commissioners examines the subject of taxation in Indiana. No person is more qualified to offer such an overview.

Lest anyone question, allow us to provide the following assurances:

1. It is not necessary for a Purdue faculty member to be named John M. to qualify for publishing an article in the *IBR*.

2. We have not abandoned the pages of this publication to a "foreign" power.

For the last several years the *Indiana Business Review* has been published six times a year. Each issue has been assigned a two-month time span. Often, however, those two months were the months of preparation rather than the month of publication. With this issue we seek to make appearance conform to reality. Though the issues within each year will continue to be numbered consecutively, the date that appears will be the month of actual publication. We will, however, allow ourselves some leeway at the end of the calendar year. The outlook issue with which we traditionally close the year will carry a December date even if we fail to get it to Hoosier hearths by Christmas Eve.

M.J.M.

The Implications of Value Added for Indiana's Food Manufacturing Industries

John M. Connor

The author is assistant head for research and associate professor of agricultural economics at Purdue University. An earlier version of this article was delivered at the Indiana Conference on Value Added for Agribusiness, held in Indianapolis on February 13.

Value added: what does it mean to Indiana agribusiness, particularly to food manufacturing? What role in the Indiana economy is played by the food manufacturing sector? What actions can—or should—be taken by state agencies and state-supported institutions to facilitate or redirect the structural adjustments occurring in Indiana's agribusiness sector? The answers to these questions help us to understand the current state of affairs and to chart a direction for the future.

What Is Value Added?

The term "value added" is becoming one of the hackneyed buzzwords of the 1980s. It means many different things to different people:

- *To people writing about international agricultural trade,* value added food products are the same as processed products. By implication, raw agricultural products have little or no value added to them.
- *To most food scientists and engineers,* value added seems to signify highly processed or highly refined food produced with advanced technologies. One can infer that more traditional foods created with unpatented technologies have little value added.
- *To the marketing managers of food companies,* value added products often are equated with items that can be sold at higher unit prices. That is, compared to close sub-

Figure 1
Economic Definition of Value Added
(% of Sales for a Typical U.S. Food Manufacturer)

Purchased Inputs from Other Firms	
Ingredients	53%
Packaging	9%
Contract work and resales	7%
Advertising	5%
Plant and equipment	2%
Energy	1%
Rents	1%
Interest	1%
Business services	.2%
Payments to Government	
State taxes	3%
Federal taxes	2%

VALUE ADDED BY OTHER FIRMS AND GOVERNMENT (82%)

+

Inputs Provided by Firm	
Wages	6%
Salaries	4%
Fringe benefits	2%
Other selling costs	2%
After-tax profits retained	2%
Repairs, depreciation/Rental value of land and plant	1%
Dividends	1%
R&D	.4%

VALUE ADDED BY THIS FIRM (18%)

= **SALES REVENUE (100%)**

Note: Percentages may not add to 10% due to rounding.
Source: John M. Connor, Richard T. Rogers, Bruce W. Marion, and Willard F. Mueller, *The Food Manufacturing Industries: Structure, Strategies, Performance, and Policies* (Lexington, Mass.: Lexington Books, 1985), Tables A-5 and A-6.

stitutes readily available on the market, such food items use more costly ingredients, have more elaborate packaging, evoke a distinctive image in the minds of buyers, or incorporate some other novel feature of promotional value. In contrast, marketing managers regard plain, unbranded, or generic foods as hopelessly devoid of value added.

- *To most consumers,* value added foods are more or less equivalent to highly convenient, labor-saving items typically perceived as of fairly recent origin. To them, perhaps, ingredients used to prepare foods "from scratch" are low in value added.
- *To state or local economic development officials,* a value added industry is one that is growing, provides jobs, and directly or indirectly spins off a good deal of taxable income. By implication, industries that are slow-growing, low in profits, or efficiently use small-scale factories have little value as tools of economic development.

Which of these concepts of value added is the best? Processed? High-tech? High priced? Convenient? Dynamic? To some extent these various definitions of value added are incompatible, but perhaps there is a common thread as well.

The economist's definition of value added is at once *precise* and *measurable.* Moreover, it integrates most of the disparate meanings currently in use.

In brief, **value added** (which is also termed "net product") is the **difference between a firm's sales revenues and all its payments to other legally separate entities for purchased physical inputs and services.** In other words, value added is the **sum of all returns to factors of production controlled by the firm:** returns to land, structures, equipment, labor, management, and borrowed financial capital. **Figure 1** illustrates this definition.

Note that value added is not the same as profits or gross margins. Indeed, a company can be losing large sums of money in a given year and still be generating substantial value added as long as it continues to operate.

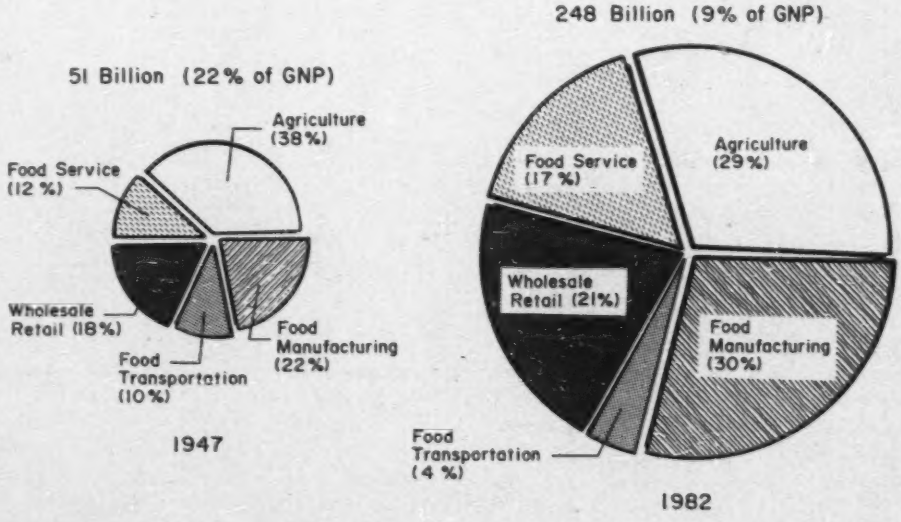
This economic concept of value added has several important features. Unlike sales, the value added of every company contributing to the final consumer product can be summed up without any duplication or double-counting. When a household buys a dollar's worth of food, about 15 cents of that dollar is retained by the food retailer and the retailer's employees for their value added. The retailer spends about 80 cents on purchases from grocery wholesalers. The wholesalers spend about 70 cents on purchases of processed foods from manufacturers. The chain continues back down through the system until it reaches farmers and fishermen, who in turn spend most of their gross receipts on purchased farm supplies. This is the process whereby household food purchases are transmitted throughout the whole economy.

Value added gives an objective and nonduplicative measure of the relative economic contributions of each of the parts of the food system to providing the final products to consumers. In short, value added is the best way of comparing the size of different sectors and measuring the economic contribution of each firm to the whole economy.

Value added gives an objective and nonduplicative measure of the relative economic contributions of each of the parts of the food system to providing the final products to consumers.

The 1982 contributions of agriculture and each major stage of the agribusiness subsector are shown in **Figure 2.** In 1982, the U.S. food system generated almost $250 billion, about 9% of the total, to the U.S. Gross

Figure 2
Value Added by the U.S. Food System, 1947 and 1982 (% of U.S. GNP)



Note: This figure excludes the value added by industries supplying inputs to the stages of the food system above.
Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982,* Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986), Table 3.

National Product. Although not shown in the figure, some analysts include all the input-supplying industries as well—fertilizer, tractors, food processing machinery, trucks, construction, and so forth—which would raise the 1982 contribution of the total food and fiber system to at least $450 billion, about 15% of U.S. GNP.

In 1982, manufacturing was the largest single component of the food system, three-tenths of the total, followed by agriculture (29%), food distribution (21%), and food service (17%).

The relative sizes of the food system and its components have shifted markedly during the post-World War II period. In 1947 the food system's value added was only $51 billion ($181 billion in 1982 dollars), but its share of the U.S. economy was more than twice as large as in 1982. Even more striking are the changed slices of the pie shown in Figure 2.

In 1947, agriculture dominated the system, with nearly two-fifths of the system's value added. Food manufacturing was slightly more than one-fifth. But now their positions have reversed. The share of food distribution (wholesale and retail trade) has remained unchanged at about one-fifth. The role played by transportation is much diminished. In percentage terms, value added changed the most for food service (commercial retail eating places), its share almost quadrupling between 1947 and 1982.

Table 1
Indiana Agribusiness Employment, 1963 and 1982

Industry	1963 Total	1963 Proportion of Indiana Sector (%)	1982 Total	1982 Proportion of Indiana Sector (%)
Food manufacturing	45,900	9.0	32,900	6.3
Farm and food wholesaling	16,500	20.6	22,200	21.4
Food retailing	33,500	38.1	58,100	48.6
Food service	44,200		113,300	
Total (private nonfarm)	**140,100**	**11.7**	**226,500**	**13.5**

Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986), Tables 6 and 7.

Table 2
Sales by Indiana Agribusiness Firms, 1963 and 1982
(in billions of dollars)

Industry	1963 Current Dollars (in billions)	1963 1963 Dollars (in billions)	1982 Current Dollars (in billions)	1982 1963 Dollars (in billions)
Food manufacturing	2.0	2.0	6.2	2.2
Farm and food wholesaling	2.4	2.4	9.5	3.8
Food retailing	1.3	1.3	5.5	1.8
Food service	0.6	0.6	2.3	0.8
Total (private nonfarm)	6.3	6.3	23.5	8.6

Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986), Tables 9 and 10.

Agribusiness in Indiana

Now that we have defined *value added*, let us turn to *agribusiness*. For the purposes of this article, "agribusiness" includes all of the post-harvest, off-farm functions of the food system:

- Farm raw product assembly;
- Food, feed, and beverage manufacturing;
- Grocery product wholesaling;
- Food retailing; and
- Commercial eating and drinking places.

Even with this fairly conservative definition—which excludes farming, farm-supply wholesalers, and manufacturers of food-system inputs of all kinds—it is clear that agribusiness is a big business in Indiana. There were about 19,000 such businesses operating in Indiana in 1982, of which roughly 5,000 were family-run businesses that had no salaried employees. The number of food retailing businesses with salaried employees peaked around 1970 at about 14,000. The number of all other kinds of agribusinesses in Indiana has declined since the early 1960s.

Agribusiness *employment* trends are quite different from business-numbers trends in several respects (see **Table 1**). Overall, employment in Indiana's agribusiness industries has risen smartly: up 62% from 1963 to 1982. Moreover, agribusiness employment rose faster than in any other sector of the Indiana economy. In 1963 agribusiness firms employed 11.7% of all Hoosiers (excluding government, military, and farm workers). By 1982 agribusiness accounted for 13.5% of all private-sector jobs. (The food system *broadly* defined probably employed 21% to 24% of all Indiana workers.) In 1982, food retailing and food services accounted for a surprisingly high 49% of all retail-trade jobs in Indiana; for wholesaling the agribusiness share was about one-

fifth; and only 6% of manufacturing jobs were in food-processing plants.

One of the unfortunate drawbacks of using value added as a measure of size is that, except for mining and manufacturing, value added data are not calculated for individual industries at the state level. Another disadvantage is that value added is directly affected by the degree of vertical integration. For example, value added is high in bakery and soft-drinks bottling because these industries perform many direct delivery functions; that is, these processors are vertically integrated into the transportation sector.

As an alternative measure of output value, we developed some data on sales. (To the extent that Indiana-based companies are involved in vertically related sales to each other, these sales data involve substantial double counting.) Total sales in 1982 were $23.5 billion (as compared to average 1980-82 farm cash receipts of about $3.9 billion), up from $6.3 billion in 1963 (see **Table 2**). In deflated terms, however, these industries grew only about 37% in the 19-year period, about 1.7% per year. Most real growth occurred up to the late 1970s. By 1982 real growth had fallen about 15%, but it has since climbed back to its late 1970s peak.

Food Manufacturing

Nationally, the U.S. Bureau of the Census recognizes 47 distinct food and beverage industries. These industries, taken together, shipped more than $280 billion worth of processed products in 1982, making this combination the largest of the 20 major industry groups in the U.S. manufacturing sector. (The largest food processing industry is meat-packing, with $30 billion in shipments in 1982. The smallest is chewing gum, with less than $1 billion.) Employment in the food manufacturing industries totaled 1.8 million, a level that has remained virtually unchanged since the 1950s.

Value added varies across the various food manufacturing industries. The value added contributed by a single worker varies enormously, as well as the value added per

Table 3
Value Added Across Selected U.S. Food Manufacturing Industries, 1982

Industry	*Value Added per Dollar of Shipments (in Cents)*	*Value Added per Employee (in Dollars)*	*Average Hourly Earnings of Production Workers (in Dollars)*
High Value Added:			
Breakfast cereals	63	168,100	12.91
Flavorings	63	230,200	8.20
Cookies and crackers	60	61,200	8.42
Bread, rolls, and cakes	60	46,100	8.68
Pasta products	52	65,600	7.45
Pet foods	52	131,100	8.78
Miscellaneous prepared foods	52	69,600	7.02
Confectionery	48	60,400	7.27
Distilled liquors	47	119,700	10.15
Dried fruits and vegetables	45	58,100	8.18
Chocolate and cocoa	45	99,700	9.04
Frozen fruits and vegetables	45	50,500	6.57
Canned specialties	43	75,600	8.04
Flour mixes and doughs	43	89,600	9.00
Pickles, sauces, and dressings	41	79,000	7.83
Frozen specialties	41	48,700	6.79
Soft drinks bottling	41	60,200	7.84
Beer	41	105,500	15.37
Moderate Value Added:			
Canned fruits and vegetables	38	50,400	7.24
Wines	36	84,500	9.80
Wet corn milling	35	121,800	12.36
Animal fat rendering	32	52,100	8.25
Ice cream	32	51,100	8.48
Prepared milk products	31	118,700	9.10
Poultry and egg processing	27	29,500	5.38
Shortening and cooking oils	26	101,000	9.88
Low Value Added:			
Processed meats	24	44,300	8.68
Fluid milk products	22	49,700	8.90
Flour milling	22	72,500	9.64
Poultry dressing	21	18,000	5.02
Animal feeds	19	58,300	7.25
Cheese	17	60,000	7.66
Meat-packing	13	43,100	9.06
Soybean crushing	8	76,200	9.19
Butter	8	61,600	8.14

Note: High, moderate, and low value added are based on value added/shipments ratios of over 40%, 25% to 40%, and below 25%, respectively. Note that the gross value added data taken from Census sources are slightly larger than the net value added data derived from input-output methods.
Source: U.S. Census Bureau.

dollar of sales (see **Table 3**). The high value added industries in Table 3 conform to most of the preconceptions about products that are high in value added: they are

- Highly processed (not mere "commodities");
- For the most part, packaged consumer goods;
- Relatively convenient to use; and
- Tend to be made by faster growing, more profitable (taxable) companies.

However, note that value added per employee is positively, but not closely, related to value added per dollar of shipments ($r = +0.46$). Value added per worker is high in food industries that are especially capital-intensive: flavorings, wet corn milling, flour mixes, alcoholic beverages, and vegetable oils.

Wages of production workers vary considerably among the food industries. Workers in the breakfast cereals, wet corn milling, and the alcoholic beverage industries were paid the highest wages in 1982. Pay in the poultry dressing industry was by far the lowest. In part these differences in wage rates reflect regional factors and historical differences in the assertiveness of organized labor. However, there is also a fairly strong correspondence between the value added generated per worker and the pay scale in an industry ($r = +0.53$). Therefore, high value added industries are desirable because they generate greater taxable income as well as providing better-paying jobs.

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Table 4
Food Manufacturing in Indiana by Size of Shipments, 1982

Industry	*Number of Plants*	*Number of Employees*	*Value of Shipments (in Millions of Dollars)*
Meat-packing	51	2,800	606
Soft drinks bottling	41	3,400	525
Wet corn milling	4	1,700	499
Soybean crushing	6	700	497
Bread, rolls, and cakes	30	4,600	438
Prepared milk products	4	1,600	413
Fluid milk bottling	22	1,600	349
Miscellaneous prepared foods	38	2,000	339
Animal feeds	55	900	296
Canned specialties	7	1,700	252
Processed red meats	21	1,100	189
Distilled liquors	2	1,000	185
Flavorings	8	700	183
Flour mixes and doughs	2	700	163
Flour milling	11	500	143
Shortening and cooking oils	4	500	139
Beer	3	700	127
Poultry dressing	10	1,400	125
Candy	15	1,000	125
Cheese	7	400	91
Other industries (17)	107	3,900	512
Total	**446**	**32,900**	**6,188**

Note: Some figures are slightly estimated.

Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986). Appendix Tables, 1, 2, and 3.

Indiana's Food Manufacturing Industries

In 1982 the Census Bureau counted 446 food manufacturing plants operating in Indiana (see **Table 4**). Those plants were spread across 37 of the possible 47 food manufacturing industries, and distribution ranged from 55 plants making prepared animal feeds to only one small plant manufacturing breakfast cereals. Because a few companies owned and operated two or more plants, there were perhaps 420 or 430 different food manufacturing companies represented in Indiana in 1982.

Indiana's food processing operations employed 32,900 workers in 1982. (This number does not include a few hundred additional employees who worked in separate headquarters or R&D buildings belonging to food manufacturing firms.) The output of these plants totaled $6.2 billion in 1982. Shipments were concentrated in relatively few large industries. The six largest industries accounted for nearly half of total manufacturing value of the food industries, and the ten leading industries accounted for more than two-thirds of Indiana output. Half of the industries represented in Indiana (19 of 37) each had more than $100 million in shipments in 1982. Employment is concentrated in relatively few industries: six (bread, soft drinks, meatpacking, miscellaneous foods, corn refining, and canned specialties) account for 50% of the total.

Contraction of Food Manufacturing in Indiana

The changes in Indiana's food manufacturing industries are disappointing, indeed

even disturbing, in terms of both plant closings and job losses.

Plant Closings. First, the number of food manufacturing plants was just about halved in 19 years—from 878 establishments in 1963 to only 446 in 1982. Plant shutdowns affected nearly every line of commerce. The largest declines in plant numbers were in industries serving customers in geographically localized markets: ice cream, fluid milk, bread, and soft-drinks bottling. In only six Indiana food-processing industries did the net number of plants *increase* between 1963 and 1982: frozen foods, wet corn milling, candy, and three vegetable oils industries.

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Job Losses. Second, employment trends from 1963 to 1982 were also discouraging. The industries as a whole lost 13,000 jobs between 1963 and 1982—a 28% decrease. Data from 1985 show only a very modest recovery from the depths of the 1982 recession. Employment in 1985 totaled about 35,500, a 23% decrease since 1963. Because the rate of plant closings was far greater than the rate of job losses, one can infer that it was mainly smaller plants that were closing their doors during this period. The greatest absolute declines in employment occurred in meat-packing (-4,800), fluid milk processing (-3,500), vegetable canning (-2,800), animal feed (-1,000), bread-baking (-1,100), and alcoholic beverages (-1,700). In addition to these six industries with decreases of more than 1,000 jobs, there were five other industries with *percentage* decreases of more than 50%: butter, ice cream, breakfast cereals, coffee, and pasta products.

In only one-fourth of Indiana's food industries were significant increases in employment noted for 1963-1982. These industries were processed meats, frozen foods, corn refining, pet foods, chocolate, soft-drinks bottling, flavorings, and miscellaneous foods.

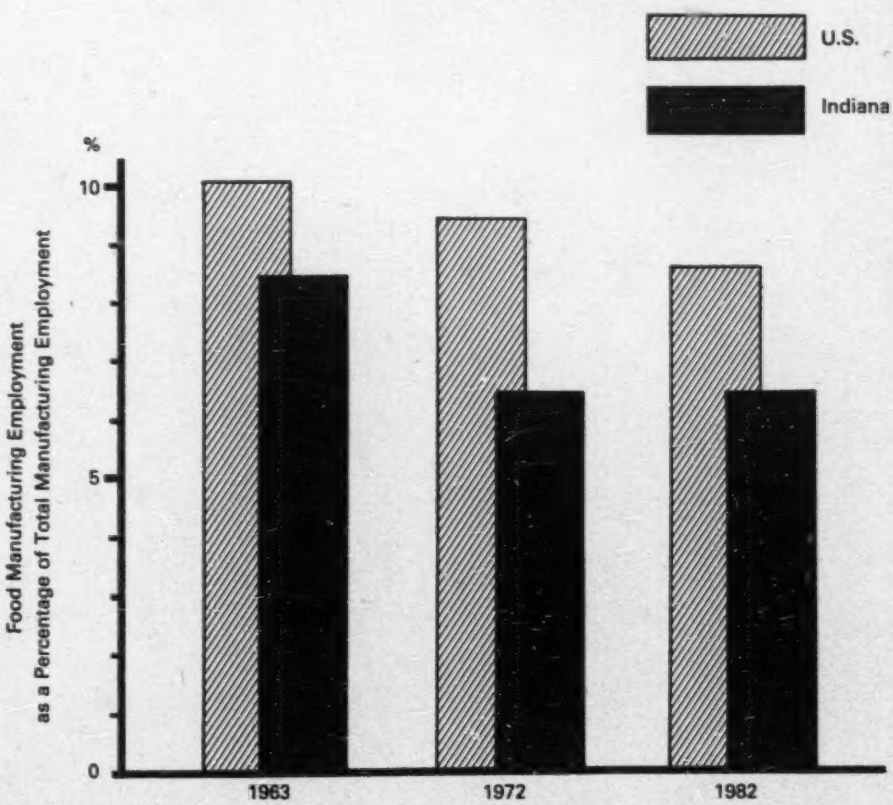
Food Manufacturing in Indiana: The Implications of Employment Trends

What are the implications of these overall employment trends? There are two possible standards against which to judge these trends. First, by comparing food manufacturing to all manufacturing, we can determine whether Indiana food manufacturing employment trends are due to a more general deindustrialization process. Second, by comparing the Indiana trends to parallel data at the national and regional levels, we can see whether Indiana's experience can be attributed to a change in the comparative economic advantage of the Great Lakes region.

Figure 3 demonstrates that, at the national level, food manufacturing employment is becoming a less important source of manufacturing employment. Two reasons for this trend are:

1. The slow growth in demand for food

Figure 3
Food Manufacturing Employment as a Percentage of Total Manufacturing Employment, 1963, 1972, and 1982



Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986).

relative to other manufactured goods; and

2. The relatively rapid labor productivity increases in food manufacturing.

For Indiana's economy, the importance of food manufacturing in the manufacturing sector was below the national average. Moreover, the drop in importance between 1963 and 1982 was steeper than in the U.S. generally.

Table 5
Indiana Food Manufacturing Industries with Extreme Real Growth Rates, 1963 to 1982

Industries with Above Average Growth	
Chocolate	(infinite)
Wine	(infinite)
Flavorings	21.2%
Prepared milk products	14.4%
Frozen foods	11.4%
Soft drinks bottling	6.8%
Wet corn milling	5.8%
Animal fats	5.7%
Misc. prepared foods	5.7%
Processed meats	3.5%
Cheese	3.4%
Bread and rolls	2.2%
Flour mixes	1.7%
Industries with Negative Real Growth	
Breakfast cereals	−13.4%
Ice cream	− 6.3%
Canned vegetables	− 5.7%
Coffee	− 4.0%
Meat-packing	− 4.0%
Pasta products	− 4.0%
Distilled liquor	− 3.9%
Butter	− 3.7%
Flour milling	− 2.8%
Pickles and sauces	− 1.5%
Beer	− 0.4%

Note: For the 13 industries not listed, real growth was 0% to 2% per year. The two industries with "infinite" growth rates had zero sales in 1963; that is, production in Indiana began after 1963.
Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986), Appendix Table 3.

Indiana's share of national employment in food processing has declined between each of the censuses since 1963. But between 1972 and 1982, Indiana held its own regionally. Thus, Indiana's deteriorating national position after 1972 appears to be attributable mainly to a decline in the comparative economic advantage of the five Great Lakes states (Illinois, Indiana, Michigan, Ohio, and Wisconsin). In short, since about 1972 the problem has been regionwide.

Sales Growth of Food Manufacturing in Indiana

Despite the gloomy picture presented by plant closings and job losses, output growth did occur in Indiana's food-processing industries. Total value of shipments of all food-manufacturing establishments located in Indiana rose from $2 billion in 1963 to $6.2 billion in 1983. Although sales measured in current dollars more than tripled in 19 years, growth adjusted for inflation was only 14% over the period. Real growth averaged 1.1% per year between 1963 and 1972, 1.8% per year between 1972 and 1977, and -1.7% per year between 1977 and 1982. (Because 1982 was a recession year, the last period may be unrepresentative.)

Growth rates varied considerably among Indiana's food-manufacturing industries between 1963 and 1982. **Table 5** lists those industries that had growth rates that were well above average or well below average. (The chocolate and wine industries show infinite growth because activity in Indiana began after 1963.) The remaining 13 industries had real growth rates that ranged from 0% to 2% per year—near the Indiana average. Real output in Indiana's food processing industries as a whole in 1985 has just about recovered to the level of the late 1970s.

Another encouraging trend in Indiana food processing is the changing mix in those industries over time. As **Table 6** documents, there was a significant shift toward the high value added industries listed in Table 3. Between 1963 and 1982, the proportion of Indiana food-manufacturing jobs in the high value added industries rose from 43% to 55% of total food-manufacturing jobs. On the basis of sales, the same trend is apparent. There was also a slight increase in moderate value added industries.

The Role of Food Manufacturing in the Indiana Economy

Food manufacturing occupies center stage in the food production-distribution system.

Table 6
The Mix of Food Manufacturing Industries in Indiana, by Degree of Value Added, 1963 and 1982

Degree of Value Added	*Number of Industries in State*		*Proportion of Employment (in percent)*		*Proportion of Value of Shipments (in percent)*	
	1963	*1982*	*1963*	*1982*	*1963*	*1982*
High	15	19	43	55	33	42
Moderate	6	8	15	16	13	20
Low	9	10	42	29	54	38
Total	**30**	**37**	**100**	**100**	**100**	**100**

Note: Definitions and lists of high, moderate, and low value added industries are shown in Table 3.
Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986), Appendix Tables 1, 4, and 5.

Farm production, assembly, processing, wholesaling, and retailing are intimately bound together through numerous vertical linkages. Products flow forward from the farm to U.S. consumers or foreign customers.

More than 90% of the value of marketed output of U.S. farms is *processed*, here or abroad. In 1982, 65% to 70% of the $4.5 billion in Indiana farm sales was purchased by U.S. food manufacturers. Another 25% to 30% of Indiana farm production was shipped abroad, almost all of it to be purchased by food processors in other countries. Only about 5% of the products of Indiana farms (mostly eggs and some fresh fruits and vegetables) reached U.S. consumers in a fresh, unprocessed form. More than 90% of the value of foods and beverages purchased by U.S. consumers is in processed products. In Indiana, 1982 retail food store sales totaled $8 billion.

In 1982 Indiana food manufacturers purchased about $1.9 billion worth of raw agricultural products from farmers. *At least* $1.1 billion (or 25%) of Indiana farm production in 1982 was shipped to food processors in other states; possibly as much as $2 billion (or 45%) of farm sales is "exported" in this manner. Data are not available to pin down this figure more precisely. (Of course out-of-state exports vary considerably across industries.)

About 50% of the sales receipts of Indiana food manufacturers are used in turn to purchase food materials, both raw and semiprocessed.

In addition to raw farm products, Indiana food manufacturers also purchased about $1.25 billion in semiprocessed food inputs. Flour was bought for flour mixes or baking, sugar for candy, high-fructose corn syrup for soft drinks, bread for stuffing mixes. Some of these transactions—but probably only a minor portion—are intra-Indiana sales. In sum, about 50% of the sales receipts of Indiana food manufacturers are used in turn to purchase food materials, both raw and semiprocessed.

The next most important category of expenditures for Indiana food processors is labor. In 1982, the wages and salaries of Indiana food manufacturers amounted to $750 million, 12% of sales receipts. Wages in Indiana appear to be about 10% higher than the national average. Of course, nearly all of these wages are paid to Indiana residents.

Labor and food materials are the major costs of Indiana food processors, but there are many other categories of expenditures that stimulate the state's economy. **Table 7**, which is based on 1982 data mostly extrapolated from national data, shows how Indiana food processors spend their $6.2 billion in sales receipts.

Expenditures by food manufacturers for farm products, labor, packaging, transportation services, power, business services, taxes, and so forth benefit many other businesses as well as governments. These linkages imply strong "multiplier effects" for food manufacturing investments. A recent study of input-output relationships in Indiana concluded that **for every $1 million** additional output from the food-processing industries, on average, another **$2.7 million in sales were generated** in other Indiana sectors.[1] This compares with sales multipliers of only 1.9 for raw (unprocessed) agricultural output. Results like this reinforce the popular perception of manufacturing as an "engine" of economic growth which propels the surrounding economy.

Three Types of Food Industries

From a public policy and future planning standpoint, it is useful to distinguish three main types of food manufacturing industries.

1. **Oriented to local customer.** First, there are several food-manufacturing industries whose location is determined principally by consumer demand in Indiana and adjacent portions of bordering states. The decline of fluid milk bottling, bread-baking, and other such *local-market* or demand-oriented industries can be attributed mainly to the declining relative population and personal incomes in Indiana and nearby states.

Reversing the decline requires public policies that stimulate per capita income growth of the region. Alternatively, policy changes or new technologies might broaden the geographic markets for the products of the local market industries. For example, changing regulations to permit "filled" or reconstituted milk might benefit Indiana vegetable oil producers, and a soft-drink technology based on dry powders might stimulate the flavorings industry in Indiana.

2. **Oriented to local agricultural supply.** Second, several food-processing industries must locate in major agricultural production zones, either because their principal food ingredients are bulky (for example, corn, hogs, carcasses, soybeans) or perishable (tomatoes) or because farmers are their customers (feed manufacturing).

In the case of these *agriculturally-related* food-processing industries, the state can attract more capacity by:

- Lowering the relative *delivered* cost of agricultural products for processing, or
- Discovering new or expanded uses of farm products in which Indiana has an established comparative advantage.

Table 7
Expenditures of Indiana Food Processors, 1982 (in billions of dollars)

Agricultural products	$1.9
Semiprocessed foodstuffs	1.2
Wages and salaries	0.8
Plant and equipment costs	0.1
Packaging, chemicals, etc.	0.8
Contract work and resales	0.4
Energy and fuels	0.1
Central office expenses	0.6
Profit and taxes	0.3
Total	**$6.2**

Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986).

1. Figures derived from data in Thomas W. Hertel and Lance McKinzie, "Input-Output Analysis for the Indiana Economy," *Indiana Business Review* 59 (July-August 1984): 10-16.

Policies that improve the efficiency and financial health of Indiana agriculture and that lower the cost of assembling and storing sufficient quantities of the right quality of agricultural commodities eventually will attract more food-processing capacity to the state. The losses in meat-packing, dairy processing, and tomato canning in Indiana stem in part from declining supplies of local raw materials.

On the other hand, Indiana's apparent comparative advantage in corn, hog, eggs, and poultry production may offer future opportunities that are, as yet, not fully exploited. Technology development also can influence these industries—for example, the impact of the immobilized enzyme technology on the use of corn for high-fructose corn syrup.

3. **Footloose/high value added.** Third, there are several industries in which a food manufacturer can serve a large region or the whole country equally efficiently whether its single plant is located in Detroit, Cincinnati, St. Louis, or Chicago. These industries typically make foods with *high values* relative to distribution costs—products like prepared flour mixes, confectionary, frozen foods, canned specialties, and the like. Neither the costs of delivery to customers nor the costs of acquiring sufficient agricultural input supplies appear to dominate the location decision. Therefore, these industries are *footloose*. Most of these are also *high value added* industries.

Table 8
Value Added Characteristics of Indiana's Food Manufacturing Industries, by Location Type, 1982

Value Added Characteristic	*Oriented to Local Customer*	*Oriented to Local Agricultural Supply*	*Footloose*
Number of industries	6	13	14
Value added per dollar of sales, average	$0.35	$0.28	$0.47
Value added per employee, average	$55,000	$59,000	$106,000

Data are simple averages of U.S. data.
Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986).

Table 9
Percentage Changes in Indiana's Food Manufacturing Industries, by Location Type, 1963 to 1982

Type of Change	*Oriented to Local Customer*	*Oriented to Local Agricultural Supply*	*Footloose*
No of businesses	− 60%	− 52%	+ 5%
No. of employees	− 34%	− 43%	− 2%
Sales growth	+236%	+153%	+335%

Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986).

Implications for Public Policy

As **Table 8** shows, on average the footloose industries in Indiana were considerably higher in value added in 1982 than the other two locational types. Both value added per dollar of sales and value added per employee were significantly higher. However, these value added characteristics range widely within each locational type. Some of the local-demand (for example, bread and soft drinks) and agricultural-supply (for example, wet corn milling) industries have very desirable value added characteristics. Similarly, some of the footloose industries (for example, shortening and cooking oils) have quite low value added characteristics.

The ongoing state and regional economic development programs are likely to have the greatest impact on industrial location for these "footloose" industries. Infrastructure requirements, local taxes, regulatory burdens, and other factors amenable to state intervention will weigh heavily in the location decisions of investors. The effort often will be well repaid, for these are attractive industries, with relatively fast growth and above average export potential.

The historical changes in the three location types of food-manufacturing industries are shown in **Table 9.** Over the last two decades or so, the net number of businesses of the "footloose" type increased slightly. However, the number of plants in the other two categories declined substantially—by more than 50% in both cases.

Looking at employment and sales changes, the differences among the three location types widen. The footloose industries as a group retained their total employment levels and experienced substantial real growth. On the other hand, the other two types experienced substantial employment declines and negative real growth during 1963-1982, with the losses greater for the local-agricultural-supply type than for the local-customer-demand type. If historical trends persist, policies that tilt in favor of the footloose industries would appear

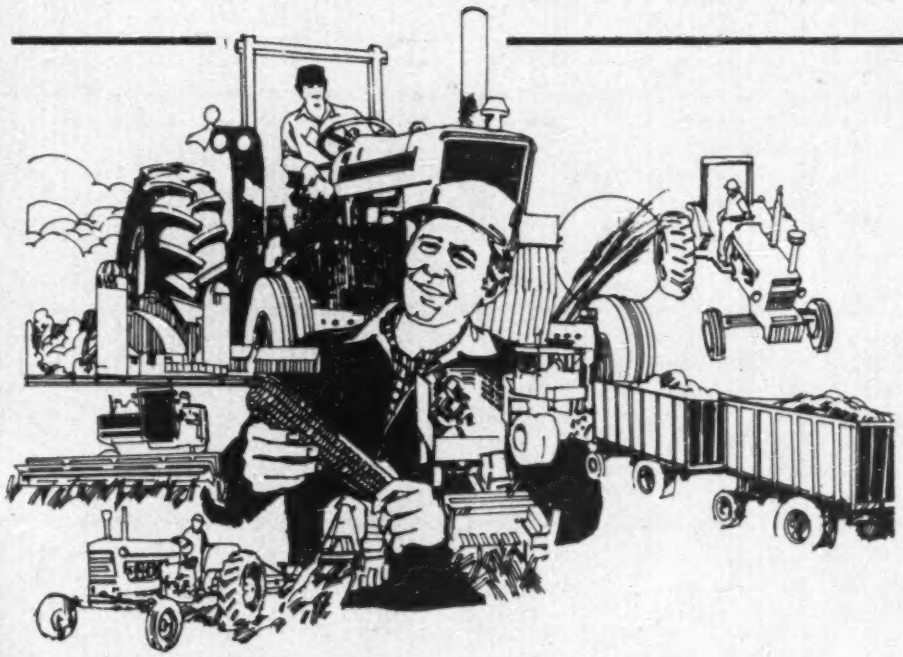


Figure 4
Policies to Influence the Location, Relocation, and Reinvestment Decisions of Food Processing Firms

Oriented to Local Customer	*Oriented to Local Agricultural Supply*	*Footloose or High Value Added*
1. Stimulate income growth.	1. Lower costs of agricultural production.	1. Target state economic development efforts.
2. Encourage population growth.	2. Lower costs of commodity assembly and storage.	2. Maintain infrastructure.
3. Encourage technologies to expand geographic size of market.	3. Improve grading standards.	3. Offer tax or financial incentives.
4. Support R&D in state on consumer food choice trends.	4. Develop agricultural varieties tailored for processing uses.	4. Reduce regulatory burdens.
	5. Develop new uses for state's agricultural products.	5. Improve schools, cultural resources, other "quality of life" factors important to managers.
	6. Support research that identifies present and future comparative advantages in production.	6. Support R&D in state for new food product development and marketing decision making.
	7. Support R&D in state for management of commodity procurement.	

to have the best chances of restoring economic health to Indiana's food-manufacturing industries. Some suggested policy options for all three kinds of industries are listed in **Figure 4.**

The research of universities or company-sponsored technical units located in or near Indiana can also attract food-manufacturing industries to the state. That research is of two main kinds: technical and economic.

Scientific and technical research might develop preservation or transportation methods to expand the geographic size of markets served by food processors. Examples include technologies to enhance shelf stability of bakery or dairy products or a flavoring powder that could be mixed with tap water to make soft drinks. Similar advances that would allow processors to obtain their food materials from more distant regions might also benefit the state.

The development of crop varieties or animal strains that can be processed more efficiently will benefit the state if Indiana is already a low-cost producer of the product.

Finally, new product development is a way of expanding the sales of food manufacturers. Typically, these activities are performed by the R&D units of manufacturers. To the extent that Indiana universities can cooperate in the solution of more basic scientific problems, their efforts will attract food processors to the state or assist processors in broadening their product lines.

But technical feasibility is only the first step in promoting the adoption of a new process or product form. Equally important is demonstrated profitability. *Economic and business research* can assist Indiana food manufacturers in several ways.

Identifying at an early stage changes in the needs, tastes, or geographic location of customers is helpful for food processors. This identification requires extensive knowledge not only of household demographics but also of grocery wholesalers, food retailers, and the large food service industry.

Programs to disseminate knowledge about export opportunities and large gov-

ernment contracts also need to be supported. Research on methods of agricultural commodity procurement, including the use of contracts and futures markets, will be of interest to most processors.

The development of computer-assisted "expert systems" software and the availability of executive education courses for commodity buyers might attract to the state processors concerned about the level of managerial expertise available locally.

Finally, food marketing research can assist processors in their market research and merchandising activities. Methods to evaluate test marketings of new products, to choose an efficient mix of selling techniques, or to measure the effectiveness of an advertising campaign are all of great interest to consumer-products manufacturers. Merchandisers often use surprisingly crude rules of thumb to arrive at decisions on these topics. The development of software for management games and simulators could make these decisions more informed.

True, many of these lessons from technical and economic research eventually will benefit manufacturers in other states. Patents will expire, and managers trained locally will move out of state. However, the five- or ten-year leads that advanced research can give to businesses are often crucial to conferring a leading market position in an industry undergoing changes in supply or demand conditions. Moreover, in-state expertise is necessary to monitor technical and economic advances developed in other regions so that they can be disseminated usefully and quickly to local manufacturers. Indeed, this keeping up with the state of the art may be in the end the more beneficial activity. Only researchers who are on the leading edge themselves can be expected to appreciate fully new developments that are potentially profitable to local food processors. □

Taxes in Indiana: Recent Changes and Anticipated Issues

John M. Huie

The author is professor of agricultural economics at Purdue and executive assistant to Steven C. Beering, president of Purdue University.

What are some of the major changes in Indiana's tax structure since 1972? What impact have these changes had on total tax collections? And what changes have occurred in the relative importance of each major tax? This article will address these important questions, briefly compare Indiana's tax situation with that of other states, and point out some major tax issues that lie ahead.

Major Changes in Indiana Taxes since 1972

Why begin in 1972? That year has been chosen as the historical base year for analysis of tax trends in Indiana because, in 1973, the General Assembly made the most sweeping changes in Indiana's tax structure in recent history. With the urging of newly elected Governor Otis Bowen, a property tax relief program was enacted that was to be substantial, visible, and lasting.

In 1973, the General Assembly made the most sweeping changes in Indiana's tax structure in recent history. With the urging of newly elected Governor Otis Bowen, a property tax relief program was enacted that was to be substantial, visible, and lasting.

What were the major components of this tax program?

1. **Strong controls were placed on the rate of growth of future property taxes.** All local units of government, except local schools, had their tax rates for operating funds frozen. To meet future needs and inflationary costs, additional revenues had to come from increasing assessed value of taxable property. Historically, this meant an annual growth of about 4.5% to 5%.

Local schools, on the other hand, could not take advantage of increased assessed value because tax levies (the dollars collected from the property tax) were controlled. Increasing school enrollments did allow for additional property tax revenue, but otherwise all new money had to come from the state. For the most part, tax increases for capital funds were little affected by new legislation.

2. **The state agreed to pay for 20% of every taxpayer's property tax liability from a new state property tax relief fund.** Beginning in 1974, therefore, every taxpayer's property taxes were 20% lower than otherwise would have been the case.

3. **To fund the property tax relief fund, the state increased the state sales tax from two cents to four cents.** The new revenue was dedicated to reducing property taxes and to paying for a portion of the increased cost of local schools.

4. **The state's gross income tax on all regular corporations was scheduled to be phased out over a 20-year period.**

5. **A new supplemental net income tax of 3% on all corporations was adopted** to help offset the loss of revenue from the gross income tax phaseout.

6. **A new source of revenue for local governments, a county adjusted gross income tax (CAGIT), was authorized.** Adoption by the County Council was required. The county tax could be adopted at 1/4% increments up to a maximum of 1%. The revenue now must be used for property tax relief. Initially, if the tax was adopted at the full 1% rate, up to 25% could be divided proportionally, based on their total tax levy, among all local governments (except local schools).

Although the details of the 1973 tax program have been modified over the years, the basic elements are still in place. The most significant changes were made in 1984. A new county individual income tax was made available, new property levies were authorized for capital expenses, and all new cumulative capital and debt service funds were excluded from being eligible for the state's 20% replacement credits.

The new individual income tax, the county option income tax (COIT), may be adopted by the governing boards of local governmental units representing more than half of the population of the county. For example, if more than half of the county's population resides within the city limits of two of the cities in that county, together the two city councils can vote to impose the tax. Revenue may be used either to support increased expenditures and/or to reduce property taxes. The rate automatically increases in annual increments of .1% from .2% the first year to .6%. A second vote must be taken to exceed the .6% rate up to a maximum of 1%. This tax may be adopted only in counties that do not have CAGIT. If both are adopted in the same year, COIT takes precedence.

The 1979 legislature reduced the state individual income tax rate from 2% to 1.9%. It also provided for a one-year, 15% reduction in individual income taxes for 1979.

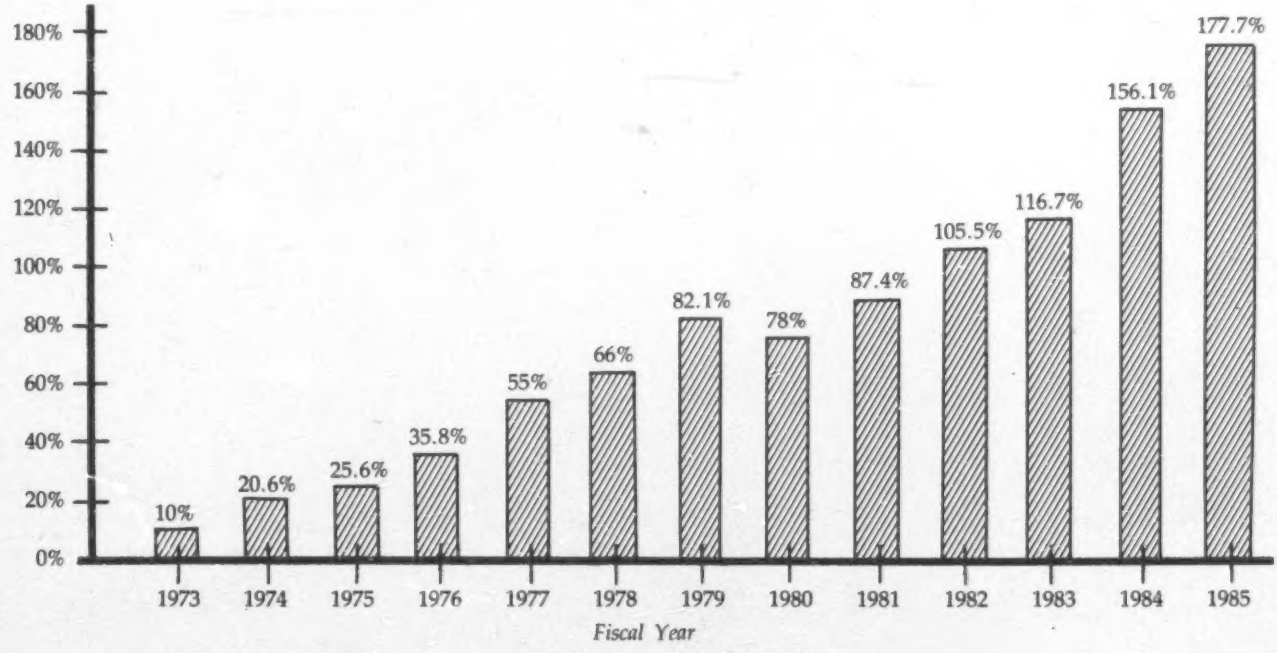
In 1985, the amount of individual income excluded from taxation was increased to substantially offset the impact of the 1982 increase on low-income taxpayers.

During a special session in December of 1982, the General Assembly enacted a one-cent increase in the state sales tax and an increase in the individual income tax rate from 1.9% to 3%. During the 1982 regular session, an increase in the supplemental net gross income tax on corporations from 3% to 4% was passed. The 1982 session also slowed by two years the phaseout of the gross income tax. This action had the effect of increasing the rate by 4%. In 1985, the amount of individual income excluded from taxation was increased to substantially offset the impact of the 1982 increase on low-income taxpayers.

Finally, in 1986 changes were made in the county adjusted gross income tax (CAGIT), which provided for increased revenue to fund local government budgets. The changes were made:

- To provide greater incentive to adopt the tax; and
- To replace anticipated loss of federal revenue-sharing funds.

Figure 1
Cumulative Percentage Change from 1972 in Indiana's Total Tax Revenue in Current Dollars: 1973 to 1985



Major Impact of Changes on Tax Structure

What has been the impact of these major changes over the past twelve years?

Growth in Tax Revenue. Figure 1 shows the cumulative percentage gain in total state and local tax revenue from 1972 to 1985. By 1985, state and local governments had collected 178% more total tax revenue than in 1972. Some increase occurred each year with the exception of 1980. In 1980 tax collections actually declined by $92 million (2.2%) compared to 1979 collections.

However, when the impact of inflation on this growth is taken into account, a substantially different picture emerges. **Figure 2** reflects the inflation-adjusted tax collections in each fiscal year compared to 1972. This figure graphically depicts one of the major fiscal management problems faced by state government.

When combined with fluctuations in the inflation rate over the business cycle, fluctuations in the rate of growth in revenue make sound fiscal planning very difficult. Wide shifts in the rate of inflation and the pressures to maintain service levels have resulted in major gaps between expectations and the purchasing power of the revenue collected. The primary pressure from expectations is one of keeping salary levels for employees, including teachers in the state's local schools and higher education institutions, at least constant with respect to inflation.

The "stagflation" period of 1978 to 1981 produced a four-year period (1980-1983) when the purchasing power of total tax revenue actually fell short of 1972 by as much as 14%. Revenue growth began to fall behind the rate of inflation in 1979. A small

Figure 2
Cumulative Percentage Change from 1972 in Indiana's Total Tax Revenue Adjusted for Inflation: 1973 to 1985

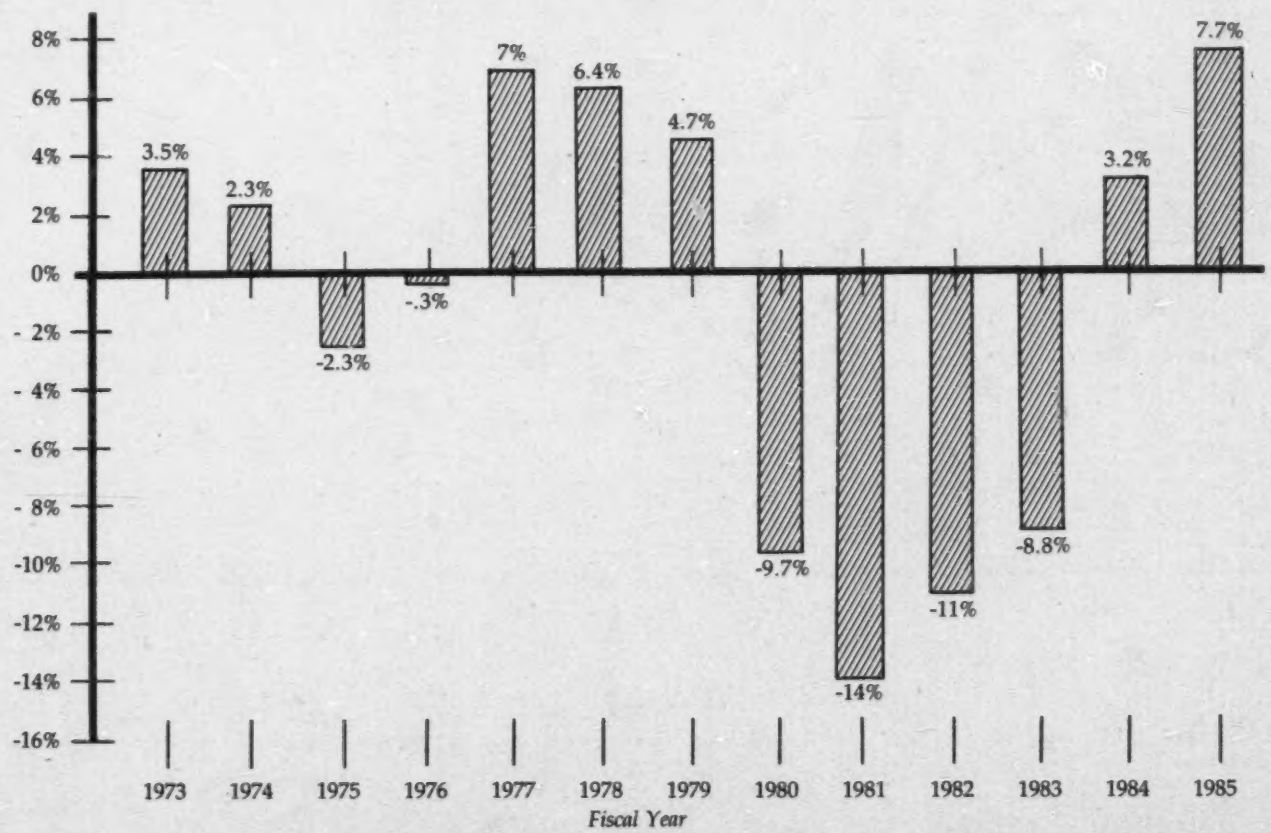


Figure 3
Cumulative Percentage Change from 1972 in Indiana's Property Tax Revenue in Current Dollars: 1973 to 1985

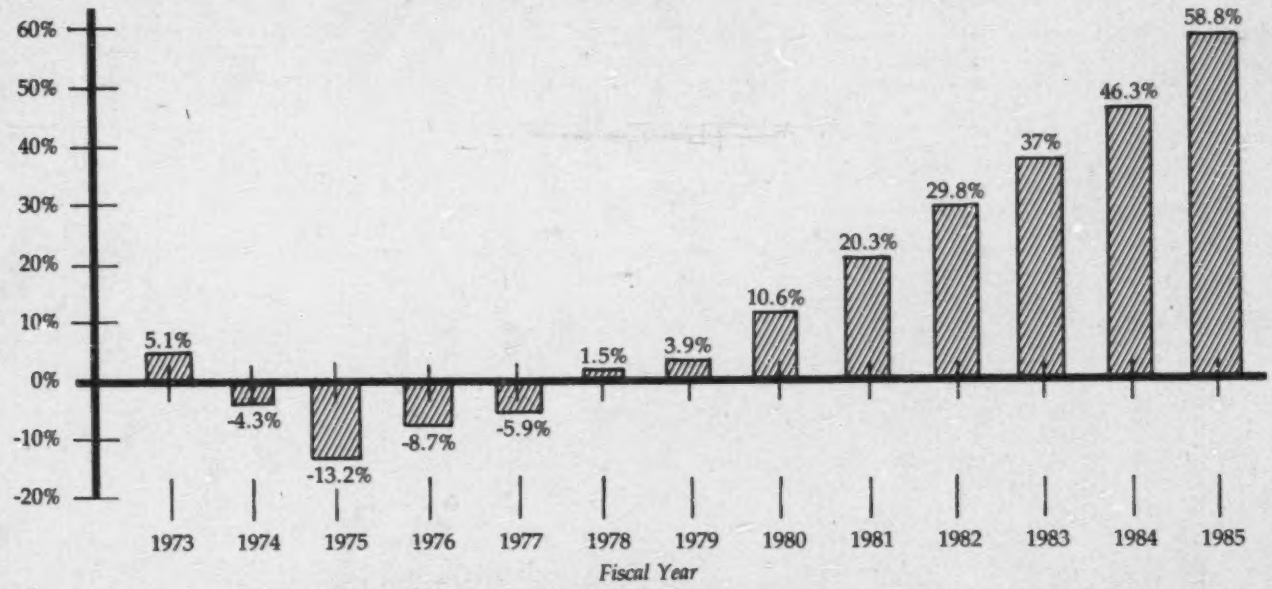
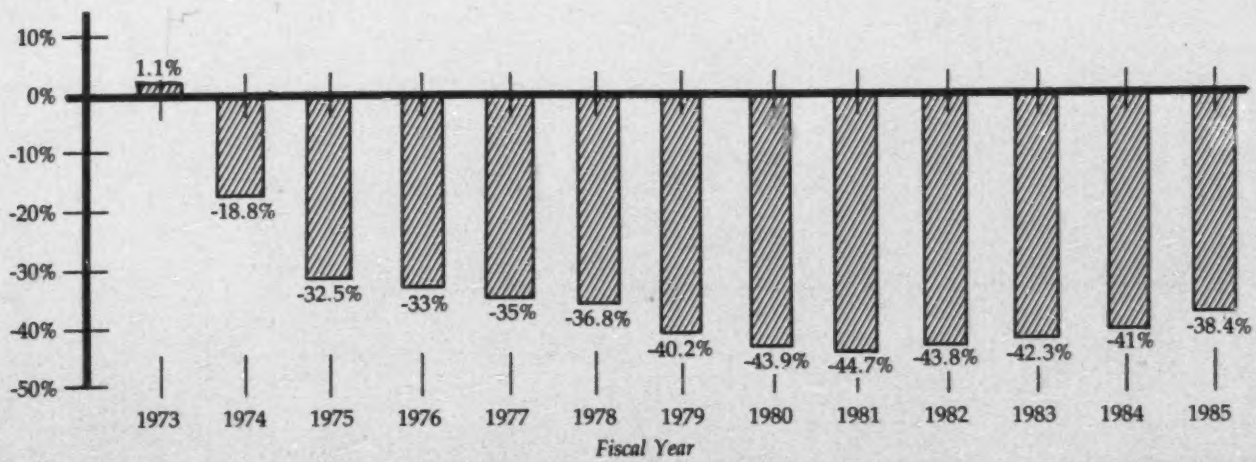


Figure 4
Cumulative Percentage Change from 1972 in Indiana's Property Tax Revenue Adjusted for Inflation: 1973 to 1985



fraction of the decline between the 1978 and 1979 fiscal years was due to the state income tax reduction. The major decline in 1980, a 13.7% drop, was the result of a very sluggish economy in 1979 and 1980 and very high inflation during that period.

By 1982, the revenue picture was beginning to reverse, but not rapidly enough to preclude the December 1982 state tax increase that resulted in boosting revenue back to the 1973 levels by 1984. By the end of 1985, the state was about 7.7% above 1972 levels and 4.2% above 1973 levels. A downturn in the economy and/or high inflation rates easily could turn this curve around once more.

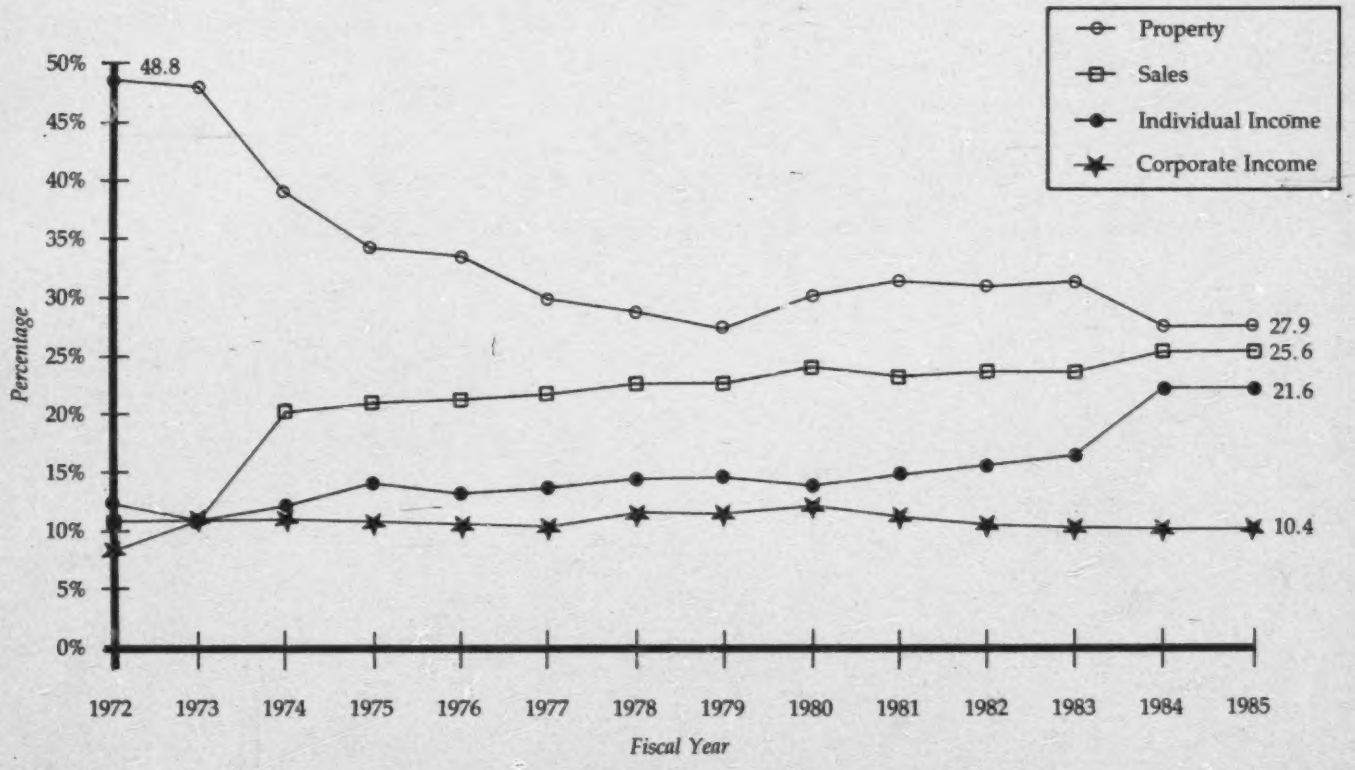
*1985 collections—which were 59% **above** 1972 levels unadjusted—were actually 39% **below** 1972 levels when adjusted for inflation. In 1981 the purchasing power of the property taxes collected in Indiana reached a low of 44.7% below the 1972 level.*

The original intent of the 1973 changes was to reduce significantly the role of property taxes in financing state and local government. Did that program succeed? **Figure 3** depicts the nominal tax collections from the property tax during the 13-year period.

Following the 1973 tax package, a two-year decline in total collections brought the property tax down to 13% below the 1972 level and 18% below 1973. Following 1975, the total began to increase again. By 1985, it reached a level almost 60% above 1972 levels. However, as **Figure 4** shows, 1985 collections—which were 59% *above* 1972 levels unadjusted—were actually 39% *below* 1972 levels when adjusted for inflation. In 1981 the purchasing power of the property taxes collected in Indiana reached a low of 44.7% below the 1972 level.

Indiana's Tax Mix. Figure 5 depicts the major shifts in the tax structure among the

Figure 5
Property, Sales, Individual Income, and Corporate Income Taxes as Percentages of Total Indiana State and Local Taxes 1972 to 1985



Note: Percentages do not add to 100% because only four major taxes are included.

four major sources of tax revenue during the period under consideration.

- In 1972, the **property tax** represented almost half (48.8%) of our total tax revenue. By 1985, it represented a little over one-fourth (27.9%) of the total.
- **State sales taxes** increased from about one-tenth to one-fourth (25.6%).
- **Individual income taxes,** including local income taxes, moved from about one-eighth (a little more than 12%) to a little less than one-fourth (21.6%).
- **Corporate income taxes** have increased slightly, from 8.5% to 10.5% of the total.
- **Interstate Comparisons.** How does Indiana's situation compare with surrounding states? Historically, tax burdens in Indiana have been low compared to other states, especially when measured as a percentage of personal income. During the 1972 to 1982 period the percentage declined from 10.5% to 8.5% (see **Table 1**). Personal incomes grew faster than taxes. During this period Indiana's level of taxation also declined further than the level in surrounding states.

Between 1982 and 1984, state and local taxes have trended upward again in most states. According to U.S. Bureau of Census estimates, by 1984 Indiana taxes represented the same proportion of personal income as in 1972—10.5%. Comparable data for other states show the same trend. However, of the other states, only Michigan and Ohio are back up to or above their 1972

Table 1
The Burdens of State and Local Taxes 1972-1984:
Comparing Indiana with Adjacent States and with the U.S.

	Taxes per Capita				*'82-'84*	*Taxes per $1000 Personal Income*				*'82-'84*
	1972	*1977*	*1982*	*1984**	*Percent Change*	*1972*	*1977*	*1982*	*1984**	*Percent Change*
TOTAL										
Indiana	431	656	857	1093	27.5	105	101	85	105	23.5
U.S.	526	813	1176	1356	15.3	128	128	111	117	5.4
Illinois	580	859	1197	1405	17.3	122	117	103	113	9.7
Kentucky	354	599	857	955	11.4	108	113	102	102	—
Michigan	578	873	1234	1575	27.6	132	130	115	138	20.0
Ohio	423	634	970	1246	28.4	102	99	94	111	18.0
PROPERTY										
Indiana	211	194	264			51	30	27		
U.S.	206	289	362			50	46	34		
Illinois	242	316	427			51	43	37		
Kentucky	74	113	152			23	21	18		
Michigan	231	327	525			53	49	49		
Ohio	185	239	326			44	37	32		
SALES**										
Indiana	109	195	259			25	28	26		
U.S.	160	242	348			35	34	31		
Illinois	177	269	326			35	33	27		
Kentucky	167	242	310			46	40	35		
Michigan	173	237	283			36	31	26		
Ohio	141	199	306			31	28	29		
INCOME***										
Indiana	90	168	248			22	26	25		
U.S.	84	160	263			18	23	23		
Illinois	90	160	257			18	20	21		
Kentucky	64	135	210			18	23	23		
Michigan	112	247	332			23	33	31		
Ohio	23	87	166			5	12	16		

* State Policy Research, Inc., State Policy Reports, December 1985.
** State only.
*** Individual and corporate.
Source except where otherwise noted: U.S. Bureau of the Census, *Census of Governments 1982*, Vol. 6, No. 4, "Historical Statistics on Government Finances and Employment."
Indiana totals adjusted to conform to state figures

level. Indiana's overall tax level, however, is still lower than all surrounding states except Kentucky. In 1984 Indiana ranked thirty-ninth among all states when taxes were measured as a percentage of personal income. In other words, 38 states had tax levies that were higher than Indiana's.

In 1984 Indiana ranked thirty-ninth among all states when taxes were measured as a percentage of personal income. In other words, 38 states had tax levies that were higher than Indiana's.

Anticipated Issues

Because of continuing apprehension concerning the structural changes in the economy and the future employment base, Indiana probably will continue to focus a great deal of attention on the impact of state policies on the future of the state's economy. A subset of this general concern is the impact of state and local tax structure on Indiana's relative competitive position for expanding investments and job opportunities. This issue will continue to capture the public's attention and be debated by policymakers.

An increasing accumulation of evidence suggests that state and local taxation can have a significant impact on the location of new investments and new jobs, especially among states within a region. Competition among states for new investments has become fierce. At the same time legitimate questions are being raised concerning the appropriate role of the state in attracting outside investments and in supporting the expansion of existing companies.

A major area of concern in Indiana is the overall level of taxation of the business community. Most attention within this area is focused on:

- The future of the state's gross tax on corporations; and
- The level of property taxation.

The role of personal property, especially the property tax on inventories, is a key issue. With passage of SB482 by the 1986 legislature, the state took another step in effectively eliminating more finished goods from the property tax.

The last several years have seen the expansion of various property tax abatement programs that have significantly lowered tax liabilities from new investments. Questions are being raised about the effectiveness and efficiency of these approaches to influencing the level and location of investment decisions.

Aside from these business tax issues, the role that property taxes play in financing state and local governments will continue to be an item on the state's agenda. With reassessment scheduled to be completed for 1989 taxes that are payable in 1990 and with the increase in property taxes that likely will take place in the interim, there will be pressure to review the current controls and/or to replace some of the property tax with an alternative. A specific proposal to initiate a local income tax for schools already has surfaced. With the anticipated shift that will occur due to reassessment of real property, proposals to increase the homestead credit are also likely to surface once more.

One of the major pressures faced by local units of government continues to be funding for capital expenditures. Many areas experience scarce revenues to maintain existing roads, streets, sewage and storm drainage systems, buildings, and so forth. State and federal environmental groups will continue to exert pressure for financial assistance to help meet these imposed standards.

Problems with the funding and administration of township poor relief, hospital care for the indigent, and welfare programs will have significant impact on the discussion of the future role of the property tax. The 1986 legislative session dealt with these issues, but the eventual fiscal impact of its decisions remains to be fully appreciated.

Education funding, which represents well over half of the state budget, will continue to be debated. People seem to be realizing that real increases in expenditures for primary and secondary education, as well as higher education, will be necessary if Indiana is to provide the quality of education necessary for its citizens to compete favorably in future job markets. There seems to be public concern that, if additional funding is made available, it should not simply mean a higher cost of providing the same level of education but that the new money should make a perceptible difference in the quality of education provided. A consensus seems to be developing that quality education at all levels, including higher education, and a qualified work force will be closely linked to the future expansion of Indiana's employment base.

If taxes are not increased, the stage will be set for very difficult priority-setting budget processes for both state and local governments in the near future.

Finally, if the U.S. Congress significantly reduces federal funding for domestic programs, there will be tremendous pressures to replace those lost funds with state or local revenues. A broad range of programs could be affected: highway funding, waste water treatment grants, community development block grants, welfare, programs for aging, community services, education, employment, research, economic development, health, environment, and energy, to name only the most obvious. Depending upon the extent of reductions, replacing a significant portion of these cuts is not likely to be possible without tax increases at the state and local level. If taxes are not increased, the stage will be set for very difficult priority-setting budget processes for both state and local governments in the near future. □

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